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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,724	04/06/2006	Thomas Beck	2003P10483WOUS	1920

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SIEMENS CORPORATION  
INTELLECTUAL PROPERTY DEPARTMENT  
170 WOOD AVENUE SOUTH  
ISELIN, NJ 08830

EXAMINER
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PAIK, SANG YEOP

ART UNIT	PAPER NUMBER
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3742

MAIL DATE	DELIVERY MODE
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02/17/2010

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b> 10/574,724	<b>Applicant(s)</b> BECK ET AL.	
	<b>Examiner</b> SANG Y. PAIK	<b>Art Unit</b> 3742	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 29 January 2010.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 20,22-25,27,29-31 and 33-39 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 20,22-25,27,29-31 and 33-39 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)          | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____                                      |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)          | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____  | 6) <input type="checkbox"/> Other: _____                          |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claim 20 is rejected under 35 U.S.C. 103(a) as being unpatentable over Richter et al (US 6,630,645) in view of and Mega et al (US 2004/0169022) and Neil et al (US 6,809,291).

Richter shows a method of producing a hole in a superalloy metal turbine which is made of a Ni or Co based alloy wherein the hole is comprises a first region having a flat straight wall region 7 and a remaining second portion 9 which is removed thereafter. But, Richter does not explicitly show a superalloy and a plurality of short laser pulses and a plurality of longer laser pulses.

Mega shows that it is known in the art that a turbine or a turbine blade can be made of a nickel based superalloy further having chromium, aluminum, titanium.

Neil shows that it is known to provide a first short pulse laser followed by a second longer pulse laser for processing or machining metal alloys, ceramics, polymers, or other materials. Neil further shows that the short pulse laser has an ultrashort pulse having a pulse length in the range of 100-600 femtoseconds wherein the longer pulse length in the range of 100 ns to 1 ms, and Neil shows that the ultrashort pulse produces

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a faster machining of the surface with a minimum heating affect with no cracking or melting wherein the second laser would sustain and enlarge the beamed area.

In view of Mega and Neil, it would have been obvious to one of ordinary skill in the art to adapt Richter with the turbine made of a superalloy which is well known in the art and also adapt Richter with a first short pulse for fast machining of the first flat wall region of the hole without cracking and with a second longer pulse for creating an second funnel region having an enlarged area.

3. Claims 22-25, 27, 29-31 and 33-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Richter in view of Mega and Neil as applied to claim 20 and further in view of Meade et al (US 6,541,731), and Loring (US 6,573,474).

Richter in view of Mega and Neil shows the method claimed except for a plurality of mirrors for directing the beams one at a time or simultaneously and a component having a layer system with a substrate and a ceramic or metallic layer.

Mead shows that it is known in the art to provide a plurality of laser beam sources with a plurality of mirrors to direct the laser beams one at a time or simultaneously as illustrated in Figures 5, 6, and 8.

Loring shows that it is well known in the art that a turbine blade with a component having a layer system comprising a substrate made of Ni or Co based alloy and a ceramic layer or a metallic layer having a composition of MCrAlY wherein M is Ni, Co or Fe.

In view of Mead, it would have been obvious to one of ordinary skill in the art to adapt Richter, as modified by Mega and Neil, with a plurality of mirrors to either provide

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the laser beams one at a time or simultaneously to affect the desired laser beam intensity or dimensions; and in view of Loring, it would have been obvious to one of ordinary skill in the art to further adapt with the component made of Ni or Co based alloy with a ceramic or metallic layer that is well known in the art for a turbine blade that has a high mechanical strength with a high melting point and an enhanced life expectancy.

***Response to Arguments***

4. Applicant's arguments with respect to claims have been considered but are moot in view of the new ground(s) of rejection.

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to SANG Y. PAIK whose telephone number is (571) 272-4783. The examiner can normally be reached on M-F (9:00-5:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Tu Hoang can be reached on (571) 272-4780. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/SANG Y PAIK/

Primary Examiner, Art Unit 3742